

APPENDIX B
AERIAL ASSESSMENT AND RECONNAISSANCE RESULTS

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
Washington Creek (upper)	NOT PREVIOUSLY LISTED	Flow Alteration, Other Habitat Alterations	Flow Alteration, Habitat	Resource Extraction, Dredge Mining, Abandoned mining	Not Visited	3.36	Wash1	A/B	Dense	Conifer	Not evident	None	Ysn, Ysh, Yns	Upper end high gradient, deeply entrenched A3 channel type with stable bedrock/boulder banks. Most fish habitat plunge pools (FWP).	Helena NF has data on road sediment delivery
						2.93	Wash2	B	Sparse	Disturbed	Placer mining	Riparian degradation, habitat alterations	Ysn, Ysh, Ts (basalt?)	Relatively recent valley bottom placer mining. Alluvial disturbance, riparian degradation. Channel is straight and entrenched. Mining disturbances include a straightened channel with berms 8-10 ft in height that have stabilized over time (FWP).	DEQ reassessment (June & June & Sept 2003) includes common ions, metals, dissolved AL, nutrients, periphyton, macroinvertebrates, habitat, pebble count and water chemistry. Nevada Crk Stream Inventory (1993) notes bank instability, habitat alterations due to placer mining, channel straightened, riparian veg removal, dewatering due to channel perched above the original floodplain. High levels of fine sediment in McNeil cores. Helena NF has data on road sediment delivery. Helena NF wants to maintain fish passage barrier at reach break between Wash1 and Wash2.
Washington Creek (lower)	Flow Alteration, Siltation, Other Habitat Alterations	Flow Alteration, Siltation	Flow Alteration, Siltation	Agriculture, Grazing related Sources	Grazing	3.91	Wash3	E/F	Sparse	Herb.	Ag: Irrigated hay/pasture	Riparian degradation, channelization, flow alterations	Qs	Highly impacted reach in valley bottom. Locally channelized through ag fields, extensive riparian clearing. Locally dense patches of woody riparian vegetation (eg between two road crossings). Multiple flow diversions. Deep and narrow E4/E5 channel types (FWP) Site has improved since 1994 BMPs were implemented (DEQ) Dewatering, erosion, sedimentation still noted (DEQ) High levels of fines in sediment cores	DEQ reassessment (June & Sept 2003) includes common ions, metals, dissolved AL, nutrients, periphyton, macroinvertebrates, habitat, pebble count and water chemistry. Nevada Crk Stream Inventory (1993) notes poor fish habitat quality, reduced channel capacity and siltation. Channel diverted into ditch through corrals below 141. STORET data indicate elevated temperature for a headwaters stream (24.8 °C or 76 °F). Hydrometrics sampling (June, Oct 2003) indicates exceedance of narrative guidance levels of iron and manganese. TU working on potential irrigation efficiency projects. Potential unstable hillslope due to mining and re-routed stream channel.

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Jefferson Creek (upper)	Flow Alteration, Other Habitat Alterations, Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Did not meet SCD	Not Visited	5.49	Jeff1	B/G	Moderate	Conifer/wil low	Placer mining	Riparian degradation, channelization	Kgd, Yms, Ts	Extensive placering disturbance in narrow valley bottom. Riparian degradation evident along channel. Dredge spoils entrench straight channel. Linear woody riparian vegetation trends indicate some riparian colonization on spoil piles.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll, periphyton, macroinvertebrates, habitat, pebble counts and water chemistry (2 sites in this reach). Nevada Crk Stream Inventory (1993) notes channel alterations due to mining, dewatered reaches in perched channels, major erosion and channel stability problems. High levels of fines in substrate cores.
Jefferson Creek (lower)	Flow Alteration, Other Habitat Alterations, Siltation	Flow Alteration, Other Habitat Alterations	Flow Alteration, Other Habitat Alterations	Agriculture, Crop-related Source, Irrigated Crop Production, Grazing related Sources, Resource Extraction, Dredge Mining	Historic mining; Grazing	1.60	Jeff2	E/F	Sparse	Willow/her b.	Ag: Irrigated hay/pasture	Riparian degradation, channelization, flow alterations	Ts, Qs	Downstream loss of channel definition due to dewatering. Riparian degradation, channel degradation. E4 channel type (FWP)	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll, periphyton, macroinvertebrates, habitat, pebble counts and water chemistry. Nevada Crk Stream Inventory (1993) notes eroding stream banks, channelization and heavy grazing impacts. An elevated turbidity reading in the early 1980s. STORET does not have data to assess metals. Hydrometrics sampling (June, Oct 2003) indicate exceedance of chronic aquatic life standard for aluminum and narrative guidance levels for iron and manganese. TU working on off-stream water and irrigation efficiency projects.
Gallagher Creek	Flow Alteration	Other Habitat Alterations	Other Habitat Alterations	Agriculture, Crop-related Sources, Irrigated Crop Production	Not Visited	2.21	Gall1	B	Dense	Conifer	Not evident	None	Tab (Basalt)	Confined channel in upper reach. Cobble dominated, moderately entrenched B3 channel (FWP). Healthy community with generally stable stream banks; high amounts of woody debris and low sediment levels (FWP).	Helena NF has data on road sediment delivery. Timber harvest in headwaters. Braided alluvial fan near Nevada confluence. Historic grazing impacts
						2.47	Gall2	E	Moderate	Willow/her b.	Ag: Irrigated hay/pasture	Riparian degradation, flow alterations	Ts, Qs	Channel emerges from confined headwaters valley onto terrace/alluvial fan complex, flowing northeast to Nevada Cr confluence. Downstream reduction in woody riparian extent, channel definition.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll, periphyton, macroinvertebrates, habitat and pebble counts. No USGS or STORET data. Dewatered.

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Buffalo Gulch	NOT PREVIOUSLY LISTED	Siltation, Other Habitat Alterations	Siltation, Other Habitat Alterations	Agriculture, Grazing related Sources, Silviculture, Logging Road Construction/Main tenance	Historic mining; Grazing	2.00	Buff1	B	Dense	Conifer	Timber Harvest	Road encroachment	Yms	Off-channel clearcuts in adjacent uplands. Extensive road network	Helena NF has data on road sediment delivery. Timber harvest in headwaters Historic grazing impacts
						3.48	Buff2	E/C	Mod/Sparse	Conifer/wil low	Timber Harvest	Road encroachment, placer mining	Tab (Basalt)	Abrupt reduction in vegetative cover relative to upstream USFS land (also shift to Tertiary basaltic rocks from Proterozoics). Reference to grazing impacts converting channel morphology from E to C channel type (FWP). Placer spoils/degradation identified in field reconnaissance. DEQ cites severe impairment due to sediment.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. FWP surveys indicate channel widening due to cattle access No physicochemical data in STORET or USGS databases. Fines in sediment cores within targets developed for the headwaters TMDL.
						0.96	Buff3	E	Moderate	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qs	Approaching Nevada Cr reservoir, channel flows into willow bottoms. One small stock pond/reservoir on upstream end of reach. Described as stable with low sediment levels (FWP)	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. No physicochemical data in STORET or USGS databases.
Braziel Creek	Siltation, Other Habitat Alterations	DID NOT MEET SCD	DID NOT MEET SCD	Did not meet SCD	Grazing; Irrigation	1.57	Braz1	B	Dense	Conifer	Not evident	None	Tab (Basalt)	Forested headwaters; no evidence of impairments	Timber harvest/grazing on BLM lands
						2.04	Braz2	B/C	Mod	Willow	Timber Harvest	Riparian degradation, road encroachment	Tab, Ys, Yms, Ts	Constructed roads border valley bottom; evidence of riparian clearing. Several road crossings. On downstream end, narrow willow corridor on channel margins.	STORET legacy data, one anomalous TSS measurement (2730 mg/L), the rest were under 30 mg/L. Braziel lake nutrient and chlorophyll data available for summer 2003 (UM Watershed Health Clinic/DEQ)
						0.35	Braz3	C	Sparse	Herb.	Ag: Irrigated hay/pasture	Riparian degradation, channelization, loss of channel form	Qs	Channel emerges onto irrigated alluvial fan.	DEQ Reassessment from June & Sept 2003 includes common ions, metals, nutrients, chlorophyll, periphyton, macroinvertebrates, habitat, pebble counts. On-stream corral may have nutrient impacts, potential culvert issues on private lands.
Nevada Creek (headwaters to Nevada Lake)	Flow Alteration, Nutrients, Other Habitat Alterations, Thermal Modifications	Metals, Nitrogen, Nutrients, Habitat, Suspended Solids	Metals, Nitrogen, Nutrients, Habitat, Suspended Solids	Agriculture, Grazing related Sources, Range grazing – Riparian, Resource	Grazing; Mining	4.14	Nev1	B	Dense	Conifer	Not Evident	None	Yc, Ysn	Highly confined forested valley	Nevada Crk Stream Inventory (1993) notes minimal bank erosion, good overhanging cover. Historically placer mined, but vegetation has recovered and channel is stable. Lacking LWD

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				Extraction, Placer Mining		1.85	Nev2	B/C	Mod/Dense	Conifer/wil low	Timber Harvest	Riparian degradation, road encroachment, possible placer mining	Ysn	Wider valley bottom relative to upstream. Hillslope timber harvesting, road construction.	Nevada Crk Stream Inventory (1993) notes increased grazing, bank instability. Historically placer mined, but vegetation has recovered and channel is stable. Lacking LWD
						1.71	Nev3	C	Moderate	Willow	Timber Harvest, Placer Mining	Road encroachment	Ysn, Yms	Relatively narrow riparian corridor in valley. Channel appears locally incised.	Nevada Crk Stream Inventory (1993) notes 85+% grass and forb utilization, active bank erosion, high w/d ratio. Legacy STORET, TSS low, even at relatively high flows. High levels of fines in cores. Reach 3 - downstream has been placed.
						1.93	Nev4	C/E	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation		Wide valley bottom with locally wide willow corridor.	Nevada Crk Stream Inventory (1993) notes 85+% grass and forb utilization, active bank erosion, high w/d ratio. Corrals on Stuckey Ranch; siltation from irrigation pipeline above creek - pipeline could fail
						5.35	Nev5	C/E/F	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, local channelization	Qs, Ts	To Washington Cr confluence; increased riparian degradation; local channelization against valley wall.	DEQ reassessment (June & Sept 2003) includes common ions, metals and dissolved Al. Nevada Crk Stream Inventory (1993) notes moderate bank stability, heavy grazing, sedimentation and raw, eroding banks. STORET has very limited TSS data with no high levels but is insufficient to evaluate TSS impairment. Sediment cores within targets developed for the headwaters. Hydrometrics sampling (June, Oct 2003) indicates exceedance of narrative guidance levels of iron. Several irrigation diversions; downstream of Hwy 141 in poor condition from grazing, dewatering, eroding banks, incised channel. Stream goes through 2 on-stream corrals; heavy algae growth noted.

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						3.60	Nev6	C/E/F			Ag: Irrigated hay/pasture	Riparian degradation, local channelization	Qs, Tab	To Buffalo Gulch confluence; sediment storage increases towards Nevada Cr reservoir; may indicate sediment influx.	Nevada Crk Stream Inventory (1993) notes widespread bank erosion with an average height of raw banks at 4 feet, heavy sedimentation, 65% of riparian veg is poor to fair. FWP temperature data (1994-1997)shows cooling effect of reservoir during irrigation season.
Nevada Lake	Nutrients, Organic Enrichment/DO, Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Did not meet SCD	None	1.86	NevLake	Reservoir	N/A	N/A	Not Evident		Qs, Tab, Yms	Nevada Creek Reservoir	DEQ reassessment (June & Sept 2003) includes nutrients and chlorophyll A. Nevada Lake chlorophyll and nutrient data available from UM Watershed Health Clinic/DEQ. Water storage is complete by May 1, release flows from June-August. Reservoir is rarely completely drained. Sediment storage in reservoir is a problem - water board may have data on sediment volumes. Surveyed in 1988 by water users (ask D. Mannix or R. Hawkins). DNRC has data on loss of storage capacity due to sedimentation.
Nevada Creek (Nevada Lake to Blackfoot River)	Flow Alteration, Nutrients, Other Habitat Alterations, Siltation, Thermal Modifications	Metals, Nitrogen, Suspended Solids, Other Habitat Alterations, Nutrients	Metals, Nitrogen, Suspended Solids, Other Habitat Alterations, Nutrients	Agriculture, Grazing related Sources, Range grazing – Riparian, Resource Extraction, Placer Mining	Dewatering; Reservoir release patterns; Grazing	3.30	Nev7	C/F	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qs, Yms	Highly irregular banklines relative to reaches upstream of reservoir; may relate to flow release patterns. Substantial channelization; some cutoff channel segments still evident. Douglas Cr. canal diversion on d/s end of reach	Nevada Crk Stream Inventory (1993) notes heavy sedimentation, bank instability, little instream cover, poor fisheries habitat, esp. downstream of Chicken Crk. FWP temperature (1994-2001) data shows cooling effect of reservoir during irrigation season. Oversized channel below reservoir due to conveyance of stored water. Channel becomes smaller downstream due to dewatering.
						2.37	Nev8	E	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qs	Locally dense riparian corridor; intermittent channelized segments.	Nevada Crk Stream Inventory (1993) notes heavy sedimentation, bank instability, little instream cover, poor fisheries habitat.

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						2.70	Nev9	E	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qs	Valley bottom widens significantly. Narrow riparian fringe on channel. Extensive secondary channels/swales on floodplain. Downstream end of reach is fenceline boundary and abrupt change in riparian corridor.	Nevada Crk Stream Inventory (1993) notes good stability, dense woody riparian vegetation.
						2.96	Nev10	E/Da	Mod/Dense	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qs	Sinuuous channel (E) with locally active secondary channels in dense willow corridor (Da). Channelization through ranch facility.	Nevada Crk Stream Inventory (1993) notes little woody riparian vegetation.
						1.03	Nev11	E	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qs	Highly denuded riparian corridor. Helmville Road Crossing	Nevada Crk Stream Inventory (1993) notes shallow, wide channel, lack of woody vegetation, bank trampling, active erosion and heavy sedimentation.
						2.41	Nev12	E	Mod/Dense	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qs	Dense willow corridor, with intermittent clearing on left bank of channel. Typically excellent willow corridor on right bank, denuded left bank. Evidence of intensive grazing on left (west) floodplain surface. Standing water on east floodplain surface; secondary channel segments evident	Nevada Crk Stream Inventory (1993) notes locations of ice scour, some meander cutoffs, minor instability, beaver activity causing flooding and inaccessibility to meadows by livestock. STORET data 1 elevated TKN, 2 of 3 NO3 exceeded 75th percentile, 1 elevated TP. Metals sampled in 1970s with very high detection limits.
						3.65	Nev13	C/E	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qs	To Nevada Spring Creek confluence: Narrow riparian fringe with extensively cleared overbanks. Highly sinuous channel in broad alluvial valley; little evidence of active lateral channel migration or in-channel sediment storage. Short avulsed channel segment at Nevada Spring Cr confluence	Nevada Crk Stream Inventory (1993) notes poor bank stability, raw banks and hoof shear.

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						6.64	Nev14	C/E	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qs	To Blackfoot River: Highly sinuous channel with narrow riparian fringe. Some center pivot irrigation on left floodplain. Recumbent bends with high amplitudes; little evidence of rapid lateral migration or recent cutoff.	Nevada Crk Stream Inventory (1993) notes poor bank stability, raw banks and hoof shear. FWP temperature data (1998-2001) may support temperature listing (>78 deg. F). USGS data, no metals standards violations (N = 8), ammonia elevated compared to ecoregion values but not toxic. Almost no fish below Douglas Creek
Nevada Spring Creek	Siltation, Other Habitat Alterations	Habitat; Siltation	Habitat; Siltation	Agriculture, Grazing related Sources, Pasture grazing – Riparian, Hydromodification, Flow Regulation/Modification	Not Visited	2.26	NevSprg 1	C/G	Sparse	Herb.	Ag: Irrigated hay/pasture	Channel widening, riparian degradation	Qs	Sinuous, E channel type that appears overwidened. From headwaters, channel width increases markedly in downstream direction. Variable channel width, in stream sediment storage indicate bank destabilization, channel widening. Floodplain scars from historic channel avulsion.	Lower Nevada Crk Inventory (1996) found NSC over-wide channel, poor riparian buffer, bank trampling. FWP has reconstructed the entire channel to decrease w/d ratios, reduce temperatures and improve water quality. Restoration includes fencing out livestock. Instream restoration and grazing management should allow removal from 303(d) list. Need to evaluate design and monitoring data for TMDL plan.
						0.66	NevSprg 2	E	Sparse	Herb.	Ag: Irrigated hay/pasture	Riparian degradation	Qs	From bridge crossing to Nevada Creek confluence: less widening, instability relative to upstream. Minimal woody riparian vegetation. Avulsed channel segments visible on floodplain	Lower Nevada Crk Inventory (1996) found NSC over-wide channel, poor riparian buffer, bank trampling. Instream restoration and grazing management should allow removal from 303(d) list. Need to evaluate design and monitoring data for TMDL plan.
Black Bear Creek	Siltation, Other Habitat Alterations	Habitat	Habitat	Agriculture, Grazing related Sources, Habitat Modification-other than Hydromodification, Bank or Shoreline Modification/Destabilization	Grazing; logging	1.98	BlkBr1	B	Mod/Sparse	Conifer	Timber Harvest	Riparian degradation, road encroachment	Tab	Headwaters section; extensive timber harvesting, creek follows access road. Potential channelization of creek along road.	None
						2.39	BlkBr2	B	Dense	Conifer	Timber Harvest	Riparian degradation, road encroachment	Tab, Ts	Emergence into alluvial valley of Tertiary sediments. Access roads cross creek and follow narrow corridor.	None
						1.01	BlkBr3	No channel observed	Sparse	Herb.	Ag: Irrigated hay/pasture	Riparian degradation, loss of channel definition	Ts	Very poor channel definition until channel reaches Bear Cr at downstream end of reach. Channel course appears structurally controlled by parallel ridge to north.	None

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						2.20	BlkBr4	B	Sparse	Willow	Ag: Pasture	Riparian degradation	Ts	Very narrow corridor within Tertiary sediments. Minimal active floodplain. Narrow riparian fringe. Some open bar sediment storage in upper reach. Cattle grazing evident in corridor. Linear feature parallel to stream corridor may be infrastructure, such as a buried pipeline.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts.
Murray Creek	Flow Alteration, Thermal Modification, Other Habitat Alterations, Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Did not meet SCD	Not Visited	3.37	Murr1	B	Dense	Conifer	Not Evident		Tab	Headwaters section; forested confined valley in basalts. Linear trend of channel/valley suggests structural control; basaltic rocks support relatively low conifer densities on south facing hillslopes.	DEQ had good access/permission during reassessment in 2003
						2.00	Murr2	B	Moderate	Conifer/wil low	Timber Harvest	Riparian degradation, road encroachment	Tab	Hillslope timber harvesting, road access along corridor.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. DEQ had good access/permission during reassessment in 2004
						3.26	Murr3	E	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, loss of channel definition	Tab, Ts, Qs	Emergence into valley; numerous diversions northward throughout reach. Channel definition decays in downstream direction. Narrow riparian fringe, valley bottom width variable due to valley wall encroachment.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. STORET has one sampling occasion in 1983. TSS seemed a bit elevated (52 mg/L) for a flow of less than 5 cfs. DEQ had good access/permission during reassessment in 2003
Douglas Creek (upper)	Thermal Modifications, Other Habitat Alterations, Siltation,	Habitat; Thermal alterations	Habitat; Thermal alterations	Agriculture, Grazing related Sources, Hydromodificatio n		3.73	Doug1	B	Dense	Conifer	Timber Harvest		Tab, PDs	Confined channel in upper reach. Access road locally in corridor. Some clearcut harvesting in uplands.	Legacy STORET from 1982-1983: low water temps, low TSS.

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	Nutrients, Salinity/TDS/Chlorides, Flow Alteration					3.86	Doug2	B/E	Moderate	Conifer/willow	Timber Harvest	Riparian degradation	Tab, Ts	Increased upland timber harvesting in downstream direction. Channel flows through confined valley with intermittent meadow E channel segments. Low density timber/selective harvesting evident on valley walls and uplands. Extensive access road complex.	None
						4.18	Doug3	E	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, loss of channel definition	Ts, Qs	Emergence into valley; several irrigation impoundments and associated diversions. Diversions on north valley wall clearly seeping and overtopping diverted water back to valley bottom. Narrow riparian fringe, valley bottom width variable due to valley wall encroachment. Relatively wide valley bottoms cleared for agriculture use.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. Irrigation reservoirs have fish ladders?
						1.39	Doug4	E/G	Sparse	Herb.	Ag: Irrigated hay/pasture	Riparian degradation	Tab, Ts, Qs	Sinuuous E channel in irrigated valley bottom. Local corridor encroachment by road. Reconnaissance investigation identified reach as incised. Abandoned channel remnant in floodplain appears perched. Channel locally confined by volcanic, tertiary sediment valley wall rocks.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts.
Douglas Creek (lower)	Thermal Modifications, Other Habitat Alterations, Siltation, Nutrients, Salinity/TDS/Chlorides, Flow	Habitat; Thermal alterations	Habitat; Thermal alterations	Agriculture, Grazing related Sources, Range grazing – Riparian, Hydromodification	Grazing; channelization	2.65	Doug5	E	Moderate	Willow	Ag: Irrigated hay/pasture	Riparian degradation, road encroachment	Qs	Local volcanic valley wall constrictions. Channel confined by highway, and locally channelized against valley wall to enlarge narrow valley bottom hayfields.	FWP temperature data (2000) shows high max temperatures at confluence of Chimney Creek. Runoff in March-April - major sediment source, high salinity. Tracy Manly may have good historical information from this creek.

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	Alteration					1.71	Doug6	E	Dense	Willow	Ag: Irrigated hay/pasture		Qs, Tab	Dense willow corridor in wide valley bottom that intermittently abuts Tab valley wall on west side. Ditch from Nevada Cr terminates at Douglas Cr in middle of reach.	Channel altered by trans-basin flows from Nevada Creek (F channel)
						1.50	Doug7	E	Moderate	Cottonwood/willow	Ag: Irrigated hay/pasture, crops	Riparian degradation	Qs	Channel flows through corridor bound by young terrace surfaces. Flood irrigated bounding floodplain. Local channelization; riparian grazing.	STORET has limited data from the 1970s that score low in terms of data currency, parameters, and replicates. Channel altered by trans-basin flows from Nevada Creek (F channel)
						2.20	Doug8	E	Sparse	Willow	Ag: Irrigated hay/pasture, crops	Riparian degradation, loss of channel definition	Qs	To Cottonwood Cr confluence: Sparse woody riparian vegetation; channel definition poor relative to upstream. Off-line storage reservoir on upstream end of reach. Locally, multiple channels are active; secondary channels may be employed to convey flows to adjacent irrigated fields.	DEQ reassessment (June & Sept 2003) includes common ions, metals, dissolved Al, nutrients, periphyton, macroinvertebrates and water chemistry. Hydrometrics sampling (June, Oct 2003) indicate slight exceedances of arsenic surface water human health standard and narrative guidance levels of manganese.
						1.08	Doug9	E	Mod/Sparse	Willow	Ag: Irrigated hay/pasture, crops	Riparian degradation	Qs	Increased channel definition downstream of Cottonwood Cr confluence. Highly sinuous channel with narrow riparian fringe. Proximal center pivot west of channel	FWP temperature data (1998-2001) may support temperature listing (>78 deg. F).
Cottonwood Creek	Flow Alteration, Nutrients, Salinity/TDS/Chlorides, Siltation, Thermal Modifications	Flow Alteration	Flow Alteration	Agriculture	Irrigation; grazing	1.65	CttnNev1	E	Mod/Sparse	Cottonwood/willow	Ag: Pasture	Riparian degradation	Ts, Qs	Channel flows through valley mapped as Ts rocks that form moraine features. Valley bottom grazing.	Channel flows through corrals. Badly dewatered, but dewatered reaches may provide fish barriers to preserve WCT genetics. Several barriers at diversions and culverts. Landowner access may be difficult.
						2.53	CttnNev2	C/E/F	Sparse	Cottonwood/willow	Ag: Irrigated hay/pasture, crops	Riparian degradation, channelization, loss of channel definition	Ts, Qs	Sparse cottonwood thread and willow fringe; Douglas Cr canal crosses channel (augments?) in reach. Extensive diversions, downstream reduction in channel definition.	Legacy STORET data indicate low TSS and low water temps even in August. Channel flows through corrals. Badly dewatered, but dewatered reaches may provide fish barriers to preserve WCT genetics. Several barriers at diversions and culverts. Landowner access may be difficult.

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						2.04	CttNev3	E	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, loss of channel definition	Qs	To Douglas Cr confluence: Channel flows across broad flat parallel to Douglas Cr. Narrow riparian fringe, small channel flowing through extensive flood irrigated fields.	Channel flows through corrals. Badly dewatered, but dewatered reaches may provide fish barriers to preserve WCT genetics. Several barriers at diversions and culverts. Landowner access may be difficult.
McElwain Creek	Siltation, Flow Alteration, Pathogens	DID NOT MEET SCD	DID NOT MEET SCD	Did not meet SCD	Irrigation; grazing	1.94	McEl1	C/E	Sparse	Willow/her b.	Ag: Irrigated hay/pasture	Riparian degradation, loss of channel definition	Qs	Reach begins at storage reservoir where most flow is evidently diverted. Ditch from Yourname Creek diversion crosses McElwain Creek at the reservoir. Channel has very poor definition, and is locally manifested as swale in valley bottom. Grazing, flood irrigation evident.	Legacy STORET: Relatively high concentrations of TSS measured in the 1980s (120 through 160). TU has worked with landowners on corral relocations and off-stream water facilities. Channel is dewatered.
Yourname Creek	Flow Alteration	Flow Alteration	Flow Alteration	Agriculture, Irrigated Crop Production	Grazing, flow diversion	4.32	Your1	A/B	Dense	Conifer	Not Evident	None	Ybo, Yms	Forested headwaters; no evidence of impairments	Difficult access. Irrigation withdraws cause dewatering.
						2.73	Your2	B	Moderate	Conifer	Timber Harvest	Road encroachment	Ybo, Tab	Channel flows through valley bounded by basalts; harvested hillslopes and access road network. Road follows channel corridor. Dense forest on south valley wall, sparse to north (south facing). Locally, relatively wide valley bottoms may support E channel types that could be effective at absorbing hillslope derived sediment.	Difficult access. Irrigation withdraws cause dewatering.
						0.63	Your3	C	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qs	Continuous narrow riparian fringe in partially cleared narrow alluvial valley bottom. Flows diverted within reach.	Difficult access. Irrigation withdraws cause dewatering.
						1.87	Your4	E	Sparse	Willow	Ag: Irrigated hay/pasture, crops	Riparian degradation, loss of channel definition	Qs	Channel definition severely diminishes between road crossing and Blackfoot River confluence.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts.
Frazier Creek	Flow Alteration	Habitat Alterations	Habitat Alterations	Agriculture, Irrigated Crop	Not Visited	1.21	Fraz1	A/B	Dense	Conifer	Not Evident		Yms	Highly confined, densely forested valley	None

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
				Production, Range Grazing - Riparian		2.00	Fraz2	A/B	Moderate	Conifer	Timber Harvest	Road encroachment	Yms, Tab	To on-line storage reservoir on margin of Blackfoot River Valley: semi-confined forested valley with harvested hillslopes and extensive access road network	None
						1.21	Fraz3	C/E	Mod/Sparse	Cottonwood	Ag: Irrigated hay/pasture, crops	Riparian degradation, loss of channel definition	Qs	To Blackfoot River: Loss of channel definition in downstream direction; near the mouth, no discreet channel discernible on photography. Two on-line storage reservoirs in reach. Local, dense cottonwood galleries. Center pivot on southern margin.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. Channel completely loses capacity - farmed over in Reach 3. Reservoirs are fish passage barriers. WCT can go downstream, not upstream because of ditch conveyance to main stem Blackfoot.
Wales Creek	Flow Alteration; Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Agriculture, Irrigated Crop Production	Not Visited	2.23	Wale1	B/E	Moderate	Cottonwood/willow	Timber harvest, Ag: irrigated hay/pasture	Riparian degradation	Qs	Reach begins at on-line storage reservoir. Extensive adjacent hillslope logging, and road access within corridor. Substantial proportion of flows appear to be diverted at reservoir. Flood irrigation south of channel downstream of impoundment. Channel maintains narrow riparian fringe to Blackfoot River confluence.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts.
Ward Creek	Flow Alteration	Siltation, Other Habitat Alterations	Siltation, Other Habitat Alterations	Agriculture, Irrigated Crop Production	Grazing, Flow diversions, Logging	1.81	Ward1	A/B	Dense	Conifer	Not Evident	None	Yh	Confined, densely forested valley in Helena Formation.	None
						0.74	Ward2	B	Moderate	Conifer	Timber Harvest	Road encroachment	Qg	Channel emerges onto hummocky glacial geology. Clearcut timber harvesting adjacent to mapped channel. Channel form through clearcuts not visible on photography	Some channel incision evident

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						2.55	Ward3	E	Mod/Sparse	Herb.	Ag: Pasture	Riparian degradation	Qg	Broad, open meadows with E channel types with localized constrictions formed in glacial terrain. Channel definition and riparian vegetation through meadows is variable, suggesting local dewatering and loss of corridor integrity. Valley walls show evidence of extensive historic timber harvesting.	Some channel incision evident
						1.20	Ward4	B	Moderate	Conifer	Timber Harvest	Riparian degradation	Qg	Relatively confined section bound by harvested valley walls. Hummocky glacial topography. Numerous access roads.	Some channel incision evident
						1.62	Ward5	E	Sparse	Herb.	Ag: Irrigated hay/pasture	Riparian degradation	Qg	Open meadows, with channel relocated/channelized on valley margin. Small, on-line glacial pothole pond may provide sediment trap.	Potential TU project for riparian/wetland grazing/weed management. Sediment drops out in wetland complex. Decent flow conditions
						0.68	Ward6	B/E	Dense	Cottonwood/willow	Ag: Pasture		Qg	To Highway 200: Narrow, straight channel with small on-line impoundment. Timber harvest/clearing on left overbank	None
						0.54	Ward7	E	Dense	Willow, aspen, cottonwood	Not evident	Riparian degradation	Qg	From Hwy 200 to Rd #112 xing : Small E channel with herbaceous bank/floodplain vegetation near highway abruptly transitions to short section of dense woody riparian vegetation (this short section may be the headwater spring area for Kleinschmidt Creek)	Reaches 7 & 8 in good condition.
						0.83	Ward8	E	Sparse	Herb.	Not evident	Riparian degradation	Qg	Rd #112 xing to Browns Lake: E channel with herbaceous vegetation. Field reconnaissance indicated channel degradation due to grazing in this section.	Reaches 7 & 8 in good condition.

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
Rock Creek	Flow Alteration; Habitat Alterations Siltation	Flow Alteration; Habitat Alterations	Flow Alteration; Habitat Alterations	Agriculture, Aquaculture, Flow Reg/Modification, Highway/Road/Bridge Construction, Irrigated Crop Production, Range Land, Removal of Riparian Vegetation	Grazing, logging, dewatering, riparian clearing, hillslope erosion	0.31	Rock1	B	Dense	Conifer	Timber Harvest	None	Qg	Confined headwaters in forested valley. Glacial deposits above Kleinschmidt Flat.	DNRC Hydrologic study (2001) shows average surface water losses of 56% due to seepage. All of Rock Creek has been restored except 1 mile of DNRC land in Rock6 and Rock7. Fish populations, temperature and whirling disease infection rates are currently being monitored by FWP. Riparian monitoring to begin soon. Restoration efforts may call for removal of Rock Creek from 303(d) list.
						0.73	Rock2	B/C	Moderate	Conifer	Rural residential development	Riparian degradation	Qg	Transition zone as channel flows onto Kleinschmidt flat. 303D mapped channel is mislocated--channel appears to flow onto margin of flat at mapped downstream end of reach. Upper end of reach may be modified as part of rural residential development.	All of Rock Creek has been restored except 1 mile of DNRC land in Rock6 and Rock7. Fish populations, temperature and whirling disease infection rates are currently being monitored by FWP. Riparian monitoring to begin soon. Restoration efforts may call for removal of Rock Creek from 303(d) list.
						1.81	Rock3	E	Sparse	Herb.	Ag: Pasture	Riparian degradation	Qs	E channel type on hillslope/flat boundary. Hillslopes harvested for timber. Very limited riparian corridor. Distinct glacial outwash channel remnants trend toward creek from center of flat; such outwash channels may form important subsurface alluvial heterogeneities and associated groundwater flow paths. Lower end of reach has been restored since 1995 photography (GPS Pt #12).	DEQ reassessment (June & Sept 2003) includes periphyton and macroinvertebrates. All of Rock Creek has been restored except 1 mile of DNRC land in Rock6 and Rock7. Fish populations, temperature and whirling disease infection rates are currently being monitored by FWP. Riparian monitoring to begin soon. Restoration efforts may call for removal of Rock Creek from 303(d) list.
						1.37	Rock4	E	Mod	Cottonwood/willow	Ag: Pasture	Riparian degradation	Qs	Abrupt increase in woody riparian vegetation relative to reach upstream. Channel follows margin of Kleinschmidt Flat. Road closely follows left margin of stream corridor.	FWP restoration efforts include reconstruction of 6.8 miles of channel, although exact locations of these reaches is unknown.

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						1.05	Rock5	C	Sparse	Herb.	Ag: Pasture	Riparian degradation	Qs	Channel crosses onto Kleinschmidt flat, and enters losing reach on glacial outwash deposits. Channel is low sinuosity, with no evident riparian vegetation. Channel segment has been described as widened with unstable streambanks (DNRC).	DNRC Hydrologic Study (2001) notes shallow, wide channel through middle of Kleinschmidt Flat with unstable banks and poor riparian vegetation causing high surface area exposure and excessive seepage loss. FWP restoration efforts include reconstruction of 6.8 miles of channel, although exact locations of these reaches is unknown.
						1.41	Rock6	C	Sparse	Herb.	Ag: Pasture	Riparian degradation	Qs	Reach begins at fenceline in middle of Kleinschmidt flat where there is an abrupt reduction in woody riparian corridor extent relative to upstream. A comparison of the two reaches indicates that there is some potential for woody riparian on Rock Creek as it traverses the flat.	DNRC Hydrologic Study (2001) notes shallow, wide channel through middle of Kleinschmidt Flat with unstable banks and poor riparian vegetation causing high surface area exposure and excessive seepage loss. High levels of fines in substrate cores. All of Rock Creek has been restored except 1 mile of DNRC land in Rock6 and Rock7. Fish populations, temperature and whirling disease infection rates are currently being monitored by FWP. Riparian monitoring to begin soon. Restoration efforts may call for removal of Rock Creek from 303(d) list.
						2.41	Rock7	C/E	Mod/Sparse	Willow/herb.	Ag: Irrigated hay/pasture	Riparian degradation	Qs	To North Fork Blackfoot River. Channel gains flow between axis of Kleinschmidt flat and confluence with North Fork. Channel enlarges, and woody riparian corridor extent increase in downstream direction.	DNRC Hydrologic study (2001) shows surface water increases of 500-1000% in lower 1 mile of Rock Creek due to groundwater input. DEQ reassessment (June & Sept 2003) includes periphyton and macroinvertebrates. FWP temperature data shows records >78 deg. F, indicating potential thermal modification listing. All of Rock Creek has been restored except 1 mile of DNRC land in Rock6 and Rock7. Fish populations, temperature and whirling disease infection rates are currently being monitored by FWP. Riparian monitoring to begin soon. Restoration efforts may call for removal of Rock Creek from 303(d) list.

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
North Fork Blackfoot River	Habitat Alterations; Siltation	NONE--FULLY SUPPORTING	NONE--FULLY SUPPORTING	Harvesting, Restoration, Residue Management, Natural Sources Silviculture	No Visual Impairments	1.50	NFB1k1	A/B	Sparse	N/A	Not evident	None	Ysn, Qa	Upper reach, short bedrock canyon above confluence with Dry Fork Blackfoot River. Hillslopes have experienced recent fire (1988 Canyon Cr. Fire?).	Siltation likely due to 1988 fire season. N. Fork has naturally high bedload.
						2.21	NFB1k2	B	Sparse	Burnt conifer?	Not evident	None	Qa	Confined B channel in recently burned watershed. Sediment storage in channel may reflect increased sediment yields due to fire.	Siltation likely due to 1988 fire season. N. Fork has naturally high bedload.
						1.76	NFB1k3	B	Sparse	Burnt conifer?	Not evident	None	Qa	High hillslope sediment contribution: hillslopes on west side of channel (Yh Helena Fm) have multiple debris flow channels that extend into stream corridor. Referred to as "Big Slide" on topo map. Downstream end of reach is approximate wilderness boundary	Siltation likely due to 1988 fire season. N. Fork has naturally high bedload.
						4.54	NFB1k4	B	Sparse		Timber harvest	None	Qa, Qg, Yh	Downstream end of reach is approximate USFS boundary. Entrenched channel with road crossings, upland timber harvesting. Large escarpment on left valley wall in Helena Formation.	Siltation likely due to 1988 fire season. N. Fork has naturally high bedload.
						2.76	NFB1k5	B	Sparse		Timber harvest	Riparian degradation	Qa, Qg, Ys, Ye	Extensive timber harvesting on hillslopes and valley bottom margins. Road access network	Siltation likely due to 1988 fire season. N. Fork has naturally high bedload. Approximately 100 cfs diverted in reaches between USFS bridge and Hwy. 200.
						4.96	NFB1k6	C	Moderate	Cottonwood	Rural residential development ; Ag: irrigated hay/pasture; minor gravel extraction	Riparian degradation	Qa, Qg	Channel emerges onto Kleinschmidt flat and transitions into a meandering C channel with bar storage, channel migration, and bendway cutoff. Lateral migration/cutoff rates appear relatively high, which may be in part related to 1995 sediment loading conditions following upper watershed fire in 1988.	DNRC Hydrologic Study (2001) indicates surface flows decrease approx 25 cfs (33%) during irrigation season between Forest Service gage and Ryan Bridge (8.2 miles) due to seepage loss. Siltation likely due to 1988 fire season. N. Fork has naturally high bedload. Approximately 100 cfs diverted in reaches between USFS bridge and Hwy. 200. Ryan Bridge area "critically dewatered".

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						1.91	NFB1k7	C/D	Moderate	Cottonwood	Ag: Irrigated hay/pasture	Riparian degradation	Qa, Qg	To Hwy 200, Rock Cr confluence: Local braided reach indicates high sediment loads and channel adjustment. Bendway cutoffs record a reduction in overall channel sinuosity, likely due to a channel recovery following a sediment pulse. Large cutoff at Hwy 200 may be engineered to maintain channel alignment at bridge.	DNRC Hydrologic Study (2001) indicates surface water flows increase approx 76 cfs between Ryan Bridge and Hwy 200 (includes influence of Rock Creek and groundwater input). Siltation likely due to 1988 fire season. N. Fork has naturally high bedload. Approximately 100 cfs diverted in reaches between USFS bridge and Hwy. 200. Ryan Bridge area "critically dewatered".
						3.47	NFB1k8	C	Moderate	Cottonwood	Ag: Pasture	None	Qa	To Rd 104 Bridge (Harry Morgan Fishing Access): Well-defined C channel flows within entrenched corridor through glacial deposits. Distinct open point bars with active riparian succession. Some split flow. Meander scars indicate historic migration/cutoff. Abandoned channel segments form arcuate wetland depressions.	High levels of fine sediment in cores. These substantially exceed targets established for the headwaters TMDL. Siltation likely due to 1988 fire season. N. Fork has naturally high bedload. Approximately 100 cfs diverted in reaches between USFS bridge and Hwy. 200.
						2.49	NFB1k9	C	Moderate	Cottonwood	Ag: Pasture	None	Qa	To Blackfoot River confluence: Entrenched corridor within glacial deposits. Channel intermittently abuts right valley wall which forms cliffs mapped as till. Broad, elongated point bars with some mid channel bars in confined valley reach. Large bar at mouth indicates that the North Fork conveys substantial sediment loads to the Blackfoot.	Siltation likely due to 1988 fire season. N. Fork has naturally high bedload. TU working on lower reaches of N Fk to install 3 miles of riparian fence.

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Kleinschmidt Creek	NOT PREVIOUSLY LISTED	Metals (copper); Thermal modification ; habitat alterations, riparian degradation; fish habitat degradation	Copper, fish habitat degradation, metals, other habitat alterations, riparian degradation, thermal modification	Agriculture, Grazing related Sources, Hydromodification, Dam Construction, Habitat Modification (other than Hydromodification), Bank or Shoreline Modification/Destabilization	Grazing, trampling, riparian clearing, road crossings	1.50	Klein1	B/E	Mod/Dense	Willow	Ag: Pasture	Riparian degradation	Qa	From boggy area on upstream end of channel near Ward Creek to Highway 200 crossing: Upstream reach flows through densely vegetated bogs that provide seepage to Kleinschmidt channel. Channel flows through glacial hummocks, which are locally forested. Field recon identified aquatic vegetation types that reflect significant groundwater contributions.	None
						1.41	Klein2	E	Sparse	Herb.	Ag: Pasture	Riparian degradation	Qa	Downstream of (first) Highway 200 crossing: Severe riparian degradation. Field reconnaissance indicates that historic E5 channel now has overwidened C-type cross section due to land use impacts. Numerous road crossings in reach; these could be reduced with restoration/relocation efforts by moving channel to south side of highway in reach.	FWP temperature and fisheries data (1998-2002) suggest restoration efforts in lower 6,250' assisting in thermal regulation and habitat enhancement. Lower reaches have been restored by MDT wetland mitigation project. Whirling disease present in lower reaches.
						1.67	Klein3	N/A	Sparse	Herb.	Ag: Pasture	Riparian degradation, degradation of channel form	Qa	Downstream of (third) Highway 200 crossing, channel is largely impounded by a series of in-stream berms. Seepage and associated groundwater inputs from Kleinschmidt flat outwash channels evident as baseflow contribution in lower reach. Field recon indicates that since 1995 photography, channel has been partially restored, although continued riparian degradation due to livestock access was noted.	DEQ reassessment (June & Sept 2003) includes metals, periphyton, macroinvertebrates, habitat and pebble counts. FWP temperature and fisheries data (1998-2002) suggest restoration efforts in lower 6,250' assisting in thermal regulation and habitat enhancement. Lower reaches have been restored by MDT wetland mitigation project. Whirling disease present in lower reaches.

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Warren Creek	Flow Alteration	Flow Alteration; Habitat Alterations	Flow Alteration; Habitat Alterations	Agriculture, Crop-related Sources, Grazing related Sources, Hydromodification, Channelization	At GPS 021: Channelization/dredging/berming (riparian has recovered significantly). Riparian clearing/flow diversion	3.27	Warr1	B	Dense	Conifer	Not evident	None	Yes, Ys, Qg, Qa	Channel originates on flanks of Ovando Mtn. On flanks of mtn, channel flows off of bedrock and into glacial deposits. Valley is well-defined and moderately confined. No riparian corridor evident.	None
						1.76	Warr2	E	Moderate	Herb./willow	Ag: pasture	None	Qa, Qg	Channel flows into broader valley with meadow bottoms. Some pasture use may have impacted riparian corridor integrity.	None
						1.56	Warr3	E/F	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qa, Qg	To Hwy 200: Abrupt increase in riparian degradation as channel flows onto private property from Plum Cr. lands. Flow diversions and local channelization through irrigated fields. Potential riparian reference reach on lower end near Hwy 200. This reach has been used as a reference for downstream conditions (Water Consulting), although their work noted that "impacts to the reference reach from upstream watershed degradation make this reach less than pristine with higher than expected width/depth ratios, relatively small substrate size, and other adversely impacted characteristics".	None
						0.57	Warr4	F	Mod	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qa, Qg	Short reach downstream of Hwy 200 channelized. Field recon documented F channel type with significant riparian colonization of bounding dredge berms.	None

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						1.01	Warr5	E/F	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization, loss of channel form	Qa, Qg	Severe riparian degradation, and loss of channel definition within reach. Most flows clearly diverted to adjacent pasture. Historic channel appears abandoned.	None
						0.72	Warr6	E/F	Mod	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization, loss of channel form	Qa, Qg	Channel has been relocated northward of historic course. Riparian corridor on current course is a well defined narrow thread (evidently following a ditch), and corridor along historic course is severely denuded.	None
						0.74	Warr7	E	Sparse	Herb./willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization, loss of channel form	Qa, Qg	Channel definition is variable. Diversion at head of reach. On lower end, channel is highly sinuous E channel. Boggy areas within valley bottom along with increased channel definition on lower end of reach suggest groundwater seepage inputs to baseflow within reach. Field reconnaissance identified baseflow contributions and aquatic vegetation indicative of groundwater inputs.	None
						0.63	Warr8	E	Mod	Willow	Ag: Irrigated hay/pasture	Riparian degradation, loss of channel definition	Qa, Qg	From Rd 104 downstream: Significant increase in riparian cover relative to upstream. E channel flows through boggy wetland. Identified on reconnaissance as potential reference reach, however riparian thread is narrow due to land use impacts.	None
						0.45	Warr9	E	Sparse	Herb.	Ag: Irrigated hay/pasture	Riparian degradation	Qa	Highly sinuous E channel with severely degraded riparian corridor.	None

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						0.93	Warr10	E	Mod	Herb./willow	Ag: Irrigated hay/pasture	Riparian degradation	Qa	Locally boggy, multithreaded E channel indicates substantial groundwater seepage and baseflow contribution.	None
						1.02	Warr11	E/F	Sparse	Herb./willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qa	Sinuuous E channel with localized channelized segments through irrigated fields. Severely degraded riparian corridor.	Restoration completed on lower portions of Warren Creek
						0.98	Warr12	E	Mod/Sparse	Herb./willow	Ag: Pasture	Riparian degradation	Qa	Upstream end highly sinuous E channel with degraded riparian corridor. Lower end flows into Blackfoot River entrenchment, possibly forming B-channel conditions. Riparian corridor extent increases in downstream direction towards Blackfoot River.	Restoration completed on lower portions of Warren Creek
Monture Creek	Habitat Alterations; Siltation	Habitat Alterations	Habitat Alterations	Agriculture, Natural Sources, Range Land, Streambank Modification/Destabilization, Erosion and Sedimentation, Pasture Grazing-Riparian	No Visual Impairments in Upper Reaches, Grazing, Riparian Clearing in Lower Reaches	3.59	Mont1	A/B	Mod/Dense	Conifer	Not Evident	None	Qg, Yms	Headwaters section; forested confined valley.	Channel above Mont 6 is widely unstable; glacial terraces are eroding; channel disappears in natural bedload sources. 3-mile reach dewatered each summer. Bull trout spawning occurring in Mont5. USFS has McNeal core data. Restoration efforts on Two Creek Ranch in bull trout spawning areas. Most of Monture and Dunham Creeks have been fenced from livestock.
						0.95	Mont2	B/C	Mod/Dense	Conifer/herb.	Not Evident	None	Qa, Qg	Relatively open narrow valley bottom; sinuous channel with active bar deposition	Channel above Mont 6 is widely unstable; glacial terraces are eroding; channel disappears in natural bedload sources. 3-mile reach dewatered each summer.
						6.91	Mont3	B	Mod/Dense	Conifer	Not Evident	None	Qa, Yms, Ysh	Entrenched, low sinuosity mountain channel in confined forested valley	Channel above Mont 6 is widely unstable; glacial terraces are eroding; channel disappears in natural bedload sources. 3-mile reach dewatered each summer.
						4.09	Mont4	B/C	Mod/Dense	Conifer/herb.	Not Evident	None	Qa, Yh, Qg	Entrenched, low sinuosity channel with localized areas of valley bottom widening, sediment deposition, and herbaceous cover.	FWP has redd count data

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						1.40	Mont5	B/C	Mod/Dense	Conifer/herb.	Timber Harvest	Riparian degradation	Qa, Qg	To Rd 107 bridge: Entrenched, moderately sinuous stream with active bar formation, channel migration, and sediment storage. Field reconnaissance documented woody debris jams, and storage of coarse bedload sediment on bars and around jams. Locally vegetation patterns indicate historic riparian timber harvest.	DEQ reassessment (June & Sept 2003) includes periphyton and macroinvertebrates. Undersized USFS bridge near guard station almost blew out in 1997. Aggradation above bridge may be natural or due to straightened section. Bull trout spawning occurring in Mont5 - FWP has redd count data.
						1.55	Mont6	C	Mod/Dense	Conifer/herb./willow	Timber Harvest	Riparian degradation	Qa	To Dunham Cr. confluence: C channel with sediment storage in point bars and mid-channel bars. The relatively open valley bottom and grassed valley bottom/bar surfaces suggest historic riparian timber harvest.	None
						1.11	Mont7	C	Mod/Dense	Conifer/herb./willow	Timber Harvest	Riparian degradation	Qa	Confined forested valley with sediment laden channel. Timber harvest on hillslopes, and apparent historic riparian harvest. Sinuous channel with active channel migration and bar storage.	Restoration efforts on Two Creek Ranch in bull trout spawning areas.
						1.20	Mont8	C	Mod/Dense	Herb./willow	Ag: Irrigated hay/pasture, crops	None	Qa	To road crossing: channel emerges from forested valley to flow through wetland complexes and against irrigated fields to east. Where the channel is well-defined, substantial sediment is stored in unvegetated bars.	Restoration efforts on Two Creek Ranch in bull trout spawning areas.
						2.04	Mont9	C	Mod/Dense	Herb./willow	Not Evident	None	Qa, Qg	Channel flows through intermittent wetland complexes, such that cross section definition is variable. Locally, channel is eroding into glacial deposits that form west valley wall.	Restoration efforts on Two Creek Ranch in bull trout spawning areas.

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						2.94	Mont10	C	Moderate	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qa, Qg	To Hwy 200: Meandering, sinuous channel intermittently abuts against glacial deposits to east. Some riparian degradation associated with land use. Abandoned channel segments support wetlands. Channel planform anomalies suggest geologic control or erosion control efforts. Riparian corridor narrows in downstream direction.	DEQ reassessment (June & Sept 2003) includes periphyton and macroinvertebrates. Bank erosion and dewatering evident
						1.52	Mont11	C	Mod/Sparse	Willow	Ag: Pasture	Riparian degradation	Qa, Qg	Downstream of Hwy 200: Left bank follows forested hillslope; right bank riparian degraded. Moderately sinuous channel with little observable open bar area. Field reconnaissance identified geologic control of left valley wall as Belt rocks overlain by till.	FWP restoration efforts include removing streamside feedlots, channel reconstruction, livestock management, revegetation and wetland enhancement. Bank erosion and dewatering evident.
						1.19	Mont12	C	Mod/Dense	Willow	Not Evident		Qa, Qg	Moderately dense willow corridor downstream of degraded reach. At fishing access (GPS 049), channel described as overwidened with fine sediment substrate capping gravel bars. Stream flows through entrenched alluvial valley bound by glacial deposits	DEQ reassessment (June & Sept 2003) includes periphyton and macroinvertebrates. FWP restoration efforts include removing streamside feedlots, channel reconstruction, livestock management, revegetation and wetland enhancement. Restoration on Heart Bar Heart Ranch underway
						1.05	Mont13	B/C	Mod/Sparse	Willow	Ag: Pasture	Riparian degradation	Qa, Qg	Channel becomes more entrenched as it approaches Blackfoot River confluence. Channel corridor is encroached by ranching/residential infrastructure. Reconnaissance effort identified fine sediment accumulations at mouth.	STORET data limited. Nutrients low. TSS = 52 mg/L, which may be a little elevated, although one datum is not particularly convincing. Restoration on Heart Bar Heart Ranch underway

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
Cottonwood Creek	Flow Alteration; Habitat Alterations; Siltation	NONE--FULLY SUPPORTING	NONE--FULLY SUPPORTING	Agriculture, Irrigated Crop Production, Natural Sources, Range Land	Grazing	2.28	CtnBlk1	C	Mod/Sparse	Conifer	Timber harvest, Ag: irrigated hay/pasture	Riparian degradation	Qa	Headwaters area: channel flows on eastern margin of depression that appears to have been an old glacial lake. The depression is currently irrigated. Much of the reach has had timber harvesting on channel margins.	USFS indicates riparian harvesting, nick points, culvert problems, channelized reaches, berms and dikes in reaches above the 303(d) list boundary. Water goes subterranean after channelized reach.
						1.61	CtnBlk2	E	Mod/Dense	Willow	Not Evident	None	Qa	Channel flows through moderately confined valley in thick willow bottom with intermittent wetland complexes.	FWP implemented water lease in 1996 to address dewatering downstream of this reach. Improvements in riparian grazing management on State lands began in 1997. FWP has stream discharge measurements from this reach (Pierce). Bull trout spawning, young-of-year found in Cottonwood Creek.
						2.16	CtnBlk3	E	Mod/Dense	Willow	Ag: Irrigated hay/pasture	Riparian degradation	Qa, Qg	Wide valley bottom with locally dense willows, and locally cleared corridor. Reach likely has internal E/Riparian reference conditions.	Clayton Marlow has water quality data on Bandy Ranch in reaches 3 and 4.
						1.16	CtnBlk4	E/F	Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qa, Qg	Channelized reach through narrow riparian willow thread. Lateral diversions into off-channel storage reservoir.	Reaches 4 and 5 have beaver impoundments - related siltation may be due to 1988 fire season.
						2.32	CtnBlk5	E/Da	Mod/Sparse	Willow	Ag: Irrigated hay/pasture	Riparian degradation, channelization	Qa	To Hwy 200: Split flow through multiple channels. Primary western channel conveys diverted flow to storage reservoir. West channel appears to be abandoned Da channel used to convey diverted flows. Broad wetland areas with extensive willows present on eastern channel course. East channel could potentially provide internal reference for west channel.	None
						0.86	CtnBlk6	C	Moderate	Willow	Ag: Pasture	Riparian degradation	Qa	From Hwy 200 to Blackfoot River, channel enters Blackfoot entrenchment. Local wetlands, moderate willow corridor.	None

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
Chamberlain Creek	Flow Alteration; Habitat Alterations; Susp solids	NONE--FULLY SUPPORTING	NONE--FULLY SUPPORTING	Agriculture, Harvesting, Restoration, Residue Management, Irrigated Crop Production, Logging Road, Construction/Maintenance, Range Land, Silviculture	No Visual Impairments	2.27	Cham1	B/E	Dense	Conifer/willow	Timber Harvest	Riparian degradation	Ysh, Qa	Extensive timber harvesting of confined valley hillslopes, and road encroachment along most of corridor. Several road crossings. Locally dense willow corridor, although narrow corridor is further limited in extent by road.	STORET legacy data: low TSS. Amy Cliefelter-Sacry thesis has riparian condition, assessments and fish habitat measurements, habitat type, embeddedness, % cover, LWD, etc. data. Chamberlain Creek may be recommended for removal from 303(d) list
						0.40	Cham2	E	Sparse	Willow	Ag: Pasture	Riparian degradation	Qa	Channel emerges onto ranch compound, where riparian corridor has been locally degraded. Off-line pond on property. Lower end of reach flows through dense riparian forest of Blackfoot River corridor.	STORET legacy data: low TSS. FWP temperature (2001) shows potential thermal alteration listing (85 deg F.). Amy Cliefelter-Sacry thesis has riparian condition, assessments and fish habitat measurements, habitat type, embeddedness, % cover, LWD, etc. data. Chamberlain Creek may be recommended for removal from 303(d) list
Blanchard Creek	Habitat Alterations; Siltation	Habitat Alterations; Siltation	Habitat alterations; siltation	Agriculture, Pasture Grazing-Riparian	Flow diversions, Grazing, road grading	1.58	Blan1	C/B	Moderate	Conifer/willow	Timber Harvest		Qa, Qg, Ysn	Confined valley with harvested hillslopes. Field recon identified extensive dewatering within reach. Ongoing DNRC restoration/monitoring efforts include fencing, bank shaping, willow planting.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts.
						0.77	Blan2	C	Mod/Sparse	Cottonwood/willow	Ag: Pasture	Riparian degradation	Qa	Channel emerges onto alluvial fan. Riparian corridor locally degraded through ranch facilities.	FWP (2002) cites increase in hydrograph by 12% due to timber harvest, side casting of road grade material and dewatering in lower 1.1 mile of channel. Elevated TKN
Buck Creek	Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Silviculture	Did not visit	2.53	Buck1	C	Mod/Sparse	Conifer/willow	Timber Harvest	Riparian degradation	Qg	Extensive clearcutting on hillslopes and valley bottom. Channel flows through local willow thickets and wetlands, however riparian corridor is largely degraded.	DEQ will have reassessment data available. USFS has culvert data. Plum Creek has X-sections and flow data, pfankuch assessments.
Deer Creek	Non-Priority Organics; Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Harvesting, Restoration Residue Management, Silviculture	Logging, roads	2.29	Deer1	B	Mod/Sparse	Conifer/willow	Timber Harvest	Riparian degradation	Qg	Extensive timber harvesting on hillslopes and valley bottom.	USFS has culvert data, failure risk assessment. Plum Creek has road sediment survey. Lack of LWD from removal, potential riparian harvest? Preliminary data may indicate removal from 303(d) list. Shane Hendrickson has 1972 (1975?) report on physical assessment.

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						0.77	Deer2	E	Moderate	willow	Timber Harvest	Riparian degradation	Qg	Series of wetland areas. Extensive hillslope timber harvesting.	USFS has culvert data, failure risk assessment. Plum Creek has road sediment survey. Lack of LWD from removal, potential riparian harvest? Preliminary data may indicate removal from 303(d) list. Shane Hendrickson has 1972 (1975?) report on physical assessment.
						3.48	Deer3	B	Moderate	Conifer/wil low	Timber Harvest	Riparian degradation	Qg	Extensive timber harvesting on hillslopes and valley bottom.	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. USFS has culvert data, failure risk assessment. Plum Creek has road sediment survey. Lack of LWD from removal, potential riparian harvest? Preliminary data may indicate removal from 303(d) list. Shane Hendrickson has 1972 (1975?) report on physical assessment.
						1.89	Deer4	B/C	Dense	Conifer	Timber Harvest	None	Qg	Transitional B/C channel in less intensively harvested reach. Thick corridor in valley bottom	USFS has culvert data, failure risk assessment. Plum Creek has road sediment survey. Lack of LWD from removal, potential riparian harvest? Preliminary data may indicate removal from 303(d) list. Shane Hendrickson has 1972 (1975?) report on physical assessment.
						2.20	Deer5	C/E	Moderate	Conifer/wil low	Timber Harvest	Riparian degradation	Qg	Locally dense riparian corridor; also local riparian degradation at residential property. Reconnaissance identified increasing sediment storage in downstream direction (transition from B to C channel from headwaters)	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. STORET has data from the 1970s that probably do not reflect current conditions. USFS has culvert data, failure risk assessment. Plum Creek has road sediment survey. Lack of LWD from removal, potential riparian harvest? Preliminary data may indicate removal from 303(d) list. Shane Hendrickson has 1972 (1975?) report on physical assessment.

Table B-1. Aerial and Reconnaissance Assessment Results by Reach

Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
West Fork Clearwater River	Non-Priority Organics; Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Harvesting, Restoration Residue Management, Silviculture	Logging, roads	0.00					Not Evident			--NO IMAGERY AVAILABLE--	Lolo NF EMA report states much of this fine sediment has entered the Clearwater River from the West Fork, where extensive logging on private corporate land has caused severe erosion problems. DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts (2 sites). Roadless, no harvest. FWP redd counts show no bull trout, although WF is considered "core" watershed. USFS has temperature data near mouth. Preliminary data may indicate removal from 303(d) list.
Richmond Creek	Non-Priority Organics; Siltation	DID NOT MEET SCD	DID NOT MEET SCD	Harvesting, Restoration Residue Management, Silviculture	Hillslope erosion, logging, roads	0.00					Not Evident			--NO IMAGERY AVAILABLE--	DEQ reassessment (June & Sept 2003) includes common ions, metals, nutrients, chlorophyll A, periphyton, macroinvertebrates, habitat and pebble counts. Road crossings need to be addressed in sensitive soils. USFS has culvert data and Land Systems Inventory (polygon layer).
Blackfoot River (Nevada Creek to Monture Creek)	Nutrients Siltation	Nutrients; Thermal Mods	Nutrients; Thermal Mods	Agriculture, Natural Sources, Silviculture, Crop-related Sources, Irrigated Crop Production	Main stem fine sediment delivery	1.62	Blckft1	C	Mod/Dense	Cottonwood/willow	Ag: Irrigated hay/pasture	Riparian degradation	Qa	From Nevada Cr. Confluence to Cedar Meadow Fishing Access: sinuous channel with recent bendway cutoff. Some relatively dense riparian, but local topbank clearing. Recent channel shortening from cutoff may have caused local base level lowering and upstream downcutting. Riparian corridor narrows into terrace confinement downstream; bridge is in a good location with respect to channel migration trends.	Modern STORET: NH3- 1 of 4 samples > 90th percentile, TKN 2 of 2 samples > 95th percentile, TP 2 Of 2 samples > 95th percentile, OrthoP 1 sample greater than 95th, Ammonia not toxic

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						2.84	Blckft2	F	Sparse	Cottonwood/willow	Ag: Irrigated hay/pasture	Riparian degradation	Qa (Qg)	To downstream of Yourname Cr confluence: Entrenched channel with very narrow riparian thread. Channel flows through glacial deposits (mapped as Qa on Butte geo map), and intermittently abuts high bluff on right bank. Bluffs appear gullied, and sediment contributions from these high banks may be exacerbated by floodplain/terrace irrigation. However, no evidence of increased sediment storage (open bar area) downstream of bluffs. No evidence of discreet pool/riffle sequences, such that the channel may be planar bed (armored with coarse sediment; little sediment differentiation within cross section).	None
						2.32	Blckft3	C	Mod/Dense	Cottonwood/willow	Ag: Irrigated hay/pasture	Riparian degradation, bank erosion	Qa (Qg)	Sinuuous channel with large meanders. Outside bends abut high bluffs of glacial deposits on right bank; high bluffs are gullied, and sediment contributions off of the bluffs may be accelerated due to irrigation. Meanders appear incised below historic point bar areas, which are now forested. In middle of reach, left bank is cleared, and bankline appears to be gullied/failing. Channel migration rates are slow, and riparian succession trends consequently spatially limited.	None

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						1.72	Blckft4	C/F	Mod/Sparse	Cottonwood	Ag: Pasture	Riparian degradation	Qa (Qg)	To just downstream of Frazier Cr. Confluence. Narrow riparian thread in sinuous reach. Channel may be entrenched; meander scars indicate historic migration, but old channels may be perched and detached from active floodplain/migration corridor.	FWP data (1994-2002) shows highest temperatures for entire main stem, due to input of Nevada Creek.
						4.92	Blckft5	C/F	Mod/Dense	Cottonwood	Timber Harvest	Possible siltation in lower end of reach	Qa, Ysh, Ts	To North Fork confluence: Sinuous, entrenched meanders with forested valley margins. Left bank locally abuts valley wall of Ysh and Ts units. Mature cottonwood scroll lines on inside meanders without point bar development and young riparian succession suggests that the channel has historically downcut, and transitioned from a C channel type to a C/F channel. Sediment input from valley walls may be accelerated due to overbank timber harvesting; in-stream sediment storage increases in downstream direction through reach.	None

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						2.97	Blckft6	C	Moderate	Conifer/cot tonwood/w illow	Ag: Irrigated hay/pasture, crops	Riparian degradation, siltation, bank erosion	Qa (Qg)	Meandering channel with open bar areas, riparian successional trends, and active channel migration. Point bars and bank-attached bars are present, indication relatively high sediment storage volumes and potential siltation impairments. Irrigated valley bottom on right bank in middle of reach abuts outer bend, and irrigation combined with riparian clearing may have affected migration rates in the reach. Low terrace features are discernible on north side of channel. Southern hillslopes have been harvested for timber.	None
						3.32	Blckft7	C/F	Moderate	Conifer/cot tonwood/w illow	Timber Harvest	None	Qg, Qa, Ysn	To downstream of Warren Cr confluence. Channel flows against southern valley margin, and is entrenched, and laterally stable. Right (north) bank appears to be low terrace in alluvium. Southern hillslopes have been harvested for timber. Sediment storage, bank erosion is minor. Good buffer between harvested southern hillslopes and river corridor. One high, open bank on right bank just upstream of lower reach break appears to be contributing sediment (mapped as Ysn). No evidence of human impacts that would be accelerating that natural sediment contribution.	High levels of fine sediment in cores. These substantially exceed targets established for the headwaters TMDL.

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Water body Name	DEQ Listing 1996	DEQ Listing 2000	DEQ Listing 2002	DEQ Sources	Recon Sources of Impairment	Reach Length (mi)	Reach Name	Channel Type	Woody Vegetation Density	Dominant Stream-Side Veg. Type	Apparent Land Use (Aerial Photos)	Geomorphic Indicators of Degradation	Bounding Geology	Geomorphic Comments	Overall Data Sources
						1.73	Blckft8	C	Mod/Sparse	Cottonwood	Ag: Irrigated hay/pasture, crops	Riparian degradation, siltation, bank erosion	Qa, Qg	To Monture Cr confluence: center pivots on left bank terrace. Narrow riparian thread. High right bank bluff (mapped as till) appears to be contributing sediment. Low, vegetated bars suggest fine sediment storage on channel margins.	None
Blackfoot River (Monture Creek to Clearwater River)	Nutrients Siltation	Nutrients; Thermal Mods	Nutrients; Thermal Mods	Agriculture, Crop-related Sources, Natural Sources, Silviculture, Flow Regulation/Modification, Erosion, Sedimentation	No Visual Impairments	4.33	Blckft9	C	Moderate	Cottonwood	Ag: Irrigated hay/pasture	Riparian degradation, siltation, bank erosion	Qg, Qa, Ysn	To Russell Gates fishing access: sinuous C channel with active channel migration, sediment storage, and riparian succession. Numerous meander scars create wetland areas. Reach includes confluences of Chamberlain and Cottonwood Creeks. Just downstream from Chamberlain Creek, Ysn outcrops provide bedrock control on right bank. Appears to be reach of low slope with significant sediment storage. Limited riparian degradation; just upstream of where channel abuts highway, bendway migration may be accelerated due to land use.	FWP data (1997-2002) shows elevated temperatures during mid-summer season. USGS data from 1995-1997: ammonia and orthoP elevated compared to ecoregion. NH3 not toxic. TSS correlates well with flow, concentrations relatively low.
						2.00	Blckft10	C/F	Moderate	Conifer/cottonwood/willow	Timber harvest, rural residential	Riparian degradation	Yms	Downstream of Russell Gates, channel is entrenched and confined between valley wall to south and highway to north. Channel shows no evidence of channel migration, and sediment storage is minor. Southern hillslopes have been harvested for timber. Rural residential developments present on right bank terrace, downstream of highway encroachment.	None

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						4.72	Blckft11	B	Mod/Dense	Conifer	Not Evident	None	Qs, Ysn, Ts	To Clearwater confluence: Entrenched, relatively steep channel is confined by steep forested valley walls. Minimal evidence of channel migration or sediment storage; clearly a transport reach. Timber harvesting on south valley walls.	None